11.1 Goodness of Fit Test

1. Write the null and alternate hypothesis.
    a. H_0: Ob = Ex, or $p_1=\acute{p}_1, p_2=\acute{p}_2,\ldots$, or Observed proportions are these same as the expected.
    b. H_1: Ob ≠ Ex, At least one of the sample proportion is not what is expected.
2. Find your critical value, χ^2_R. Choose or find the level of significance, SIG = α = Level of significance. Use table or PRGM INVX2, df=k-1, k = number of categories, and Right Tail.
3. Enter Observed counts in List 1, These must be integers. Sum of observations = n
4. Enter Expected counts into List 2. These do not have to be integers.
    a. If you put the expected proportions in L3.
    b. Expected = p*n = (proportion of time) *(Sum of observed)
    c. Move curser up to highlight L2 = L3*n then press enter.
5. Run [Stat] [Test] χ^2-GOFtest.
6. Write conclusion, inserting verbal description of observed outcomes below.
    a. If p-value < α, *observed outcomes* are not significantly different than *expected.*
    b. If p-value > α, *observed outcomes* do not fit the values *expected.*

11.2 Two Way Table Test, or χ^2-test

1. Write the null and alternate hypothesis. Determine verbal description of row and column variables.
    a. H_0: Ob = Ex, Rows are independent of Columns
    b. H_1: Ob ≠ Ex, Rows are dependent on Columns
2. Find your critical value χ^2_R. Choose or find the level of significance, SIG = α = Level of significance. Use table or PRGM INVX2, df=k-1, k = number of categories, and Right Tail.
3. Enter table into a Matrix: [A] = [Obs]
4. Run [Stat] [Test] χ^2-test
5. Find [B]=[Ex] = the matrix of expected values under Matrix.
6. Check Requirements that Ex > 5 for each value in the expected value matrix [B]
7. Write conclusion, inserting verbal description of row and column variables below.
    a. If p-value < α, *Row variable* depends on *Column variable.*
    b. If p-value > α, *Row variable* is independent of *Column variable.*